

**REMARKS**

After entry of the subject Amendment, claims 1-10, 12-20, 22, 23, 25-28, 30-33, 35-37, 41-45, and 61-82 remain in the application with claims 1, 12, 22, 27, 32, 36, 41, and 43 in independent form. More specifically, in this Amendment, claims 1, 2, 7, 9, 10, 12, 13, 19, 20, 22, 27, 30, 32, 36, 41, 42, 43, and 45 have been amended and claims 61-82 have been added. Claims 11, 21, 24, 29, 34, 38-40, and 46-60 were previously cancelled and claims 3-6, 8, 14-18, 23, 25, 26, 28, 31, 33, 35, 37, and 44 remain unchanged. There is full support in the original specification for both the amended and added claims. Accordingly, no new matter has been added.

Claims 1-10, 12-20, 22, 23, 25-28, 30-33, 35-37, and 41-45 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Edwards (US 4,721,817) alone or in view of Reichel et al. (US 6,103,850). Furthermore, claims 1-10, 12-20, 22, 23, 25-28, 30-33, 35-37, 41 and 42 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Le-Khac (EP 0 761 708 A2) alone or in view of Reichel et al.

The polyether polyols formed according to the processes now claimed in the present invention are distinct from the prior art. More specifically, all of the independent claims in the present application have been amended to make it clear that the polyether polyol comprises, after formation, the aluminum phosphonate catalyst or residue thereof. Support for this amendment can be found throughout the original specification. For example, support can be found at:

page 6, lines 14-15;

page 11, lines 3-4; and

page 11, lines 11-14.

Thus, while the original specification acknowledges that some processing may occur to remove some amount of the aluminum phosphonate catalyst or its residue, the claims now recite that the polyether polyol must include some amount of aluminum phosphonate catalyst or a residue of the aluminum phosphonate catalyst after formation of the polyether polyol. That is, polyether polyols of the present invention may be additionally processed to remove the aluminum phosphonate catalyst so long as some amount of the aluminum phosphonate catalyst or residue thereof remains. Preferred amounts for the aluminum phosphonate catalyst or residue thereof in the polyether polyol are claimed in dependent claims and can range from 0.05 to 5.0 weight percent of the aluminum phosphonate catalyst or residue thereof, based on the total weight of the polyether polyol.

As is understood by those skilled in the art, the aluminum phosphonate catalyst claimed herein is not an acidic catalyst (the significance of this will be explained below in the context of the prior art to Edwards). Instead, as those skilled in the art would understand, the aluminum phosphonate catalyst claimed herein can be generally characterized as a coordination catalyst, which is a neutral species and generally functions as a catalyst by 'coordinating' a central atom, such as aluminum, with the growing polyol chain.

The prior art does not anticipate, or render obvious, the invention as now claimed in amended independent claims 1, 12, 22, 27, 32, 36, 41, and 43. With respect to Edwards,

despite the Examiner's contentions, Edwards does not disclose, teach, or suggest the aluminum phosphonate catalyst or residue thereof as claimed herein. Merely because Edwards's specification recites components that happen to be used in the formation of the aluminum phosphonate catalyst claimed in the present invention, this does not necessarily arise to the aluminum phosphonate catalyst that is claimed as a remaining component in the various independent claims. In fact, at one point when describing his catalyst, Edwards concedes that the catalyst has not even been identified (see Column 9, line 67). Instead, all that can be deduced from Edwards is that Edwards discloses some form of catalyst that is acidic in nature, i.e., an acid catalyst. Referring to Column 10, line 65, Edwards refers to his catalyst as "the acidic product mixture" that is preferably neutralized. Further, throughout his specification Edwards describes that his catalyst is an improvement on a conventional acid catalyst. Even further, it is known by those skilled in the art, that acid catalysts are frequently utilized to prepare relatively low molecular weight polyols like those of Edwards, as opposed to the relatively high molecular weight polyether polyols of the present invention. Even further yet, to further distinguish the disclosure and teachings of Edwards from the claimed invention, those skilled in the art recognize that acid catalysts, like those of Edwards, are not ideal and are, therefore, not typically utilized to catalyze polyether polyol forming reactions because use of acid catalysts leads to significant amounts of undesirable byproducts (such as cyclic ethers) due the unwanted side reactions. Finally, Edwards specifically identifies that his catalyst is preferably neutralized by the addition of a base such as sodium or potassium hydroxide (see Column 10, lines 61-68). Those skilled in the polyether polyol

art fully appreciate that remaining sodium and/or potassium content in polyether polyols that are ultimately used to form polyurethane products is undesirable due to their potential interaction with the isocyanate product used, along with the polyether polyol, to form the polyurethane products, foamed or not. In sum, Edwards does not disclose, teach, or otherwise suggest the same aluminum phosphonate catalyst claimed in the present application.

It is also worthy to note that, for the most part, Edwards does not disclose polyether polyols. Despite the brief reference to polyhydric alkanols in Column 5, line 8, Edwards focuses extensively on monols. More specifically, Edwards focuses on a process to prepare a non-ionic surfactant, specifically an alkanol alkoxylate product and, in doing so, Edwards utilizes an alkanol (i.e., an alkane alcohol), primarily a monol, to form the non-ionic surfactant. This is not surprising considering the acidic form of the catalyst in Edwards and the remarks set forth above relative to the conventional use of acid catalysts for low molecular weight products.

As for Le-Khac, as described above, the claims now make it clear that, after formation of the polyether polyol, some amount of the aluminum phosphonate catalyst (or a residue thereof) must be in the polyether polyol (even if some additional processing takes place in an attempt to remove the catalyst). As the Examiner is aware, Le-Khac utilizes DMC catalysts and does not disclose, teach, or otherwise suggestion the aluminum phosphonate catalysts claimed (and now positively recited) in the independent claims. To

this end, Le-Khac is not effective prior art against the amended claims and any rejections relying on Le-Khac are overcome.

In view of the amendments to the claims and the remarks set forth above, it is respectfully submitted that independent claims 1, 12, 22, 27, 32, 36, 41, and 43 are distinguishable over the prior art of record and are, therefore, allowable. Furthermore, the remaining claims, depend from these independent claims (directly or indirectly) such that these claims are also allowable.

It is respectfully submitted that the application is now presented in condition for allowance, which allowance is respectfully solicited. The Commissioner is authorized to charge our deposit account no. 08-2789 for any additional fees or credit the account for any overpayment.

Respectfully submitted,  
**HOWARD & HOWARD ATTORNEYS**



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Date

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### CERTIFICATE OF EXPRESS MAILING

I hereby certify that this AMENDMENT, RCE, THREE MONTH EXTENSION OF TIME, and FEES are being deposited with the United States Postal Service as Express Mail, Label No. EV612880731US, postage prepaid, in an envelope addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on **January 27, 2005**.

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